

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of embodiment III, Figure 10 in the reply filed on 6/7/07 is acknowledged.
2. Claims 1-19 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected embodiment, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/7/07.
3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because of inclusion of legal phraseology such as "comprises" in line 1. Correction is required. See MPEP § 608.01(b).
7. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junichi et al (JP 2000-224593) in view of Hazra et al (6,594,313).

Junichi et al, in Figures 1-5, discloses a method for interpolating frame that is substantially the same method of detecting a motion vector as specified in claims 20 and 21 of the present invention, comprising extracting, from a $(m+k)$ -th frame assumed between a m -th frame (m indicates an integer) of an image (e.g. Fig. 4) formed of a plurality of pixels and a $(m+n)$ -th frame (n is an integer not less than $k + 1$, k is a real number), a plurality of first blocks A produced by dividing the $(m+k)$ -th frame and each having a given size and a give shape (e.g. Fig. 6); extracting a plurality of second blocks B each having the same size and shape as corresponding first blocks from the m -th frame; obtaining first motion vectors (e.g. Fig. 4, left vector) between the first blocks and the second blocks; calculating second motion vectors (e.g. Fig. 4, right vector) which are $-(n-k)/k$ of the first motion vectors 130; extracting from the $(m+n)$ -th frame third blocks C corresponding to destinations of the first blocks A according to the second motion vectors; obtaining absolute difference values 514 between each of opposite pixels of the second blocks and the third blocks; and counting pixels having the absolute difference value not more than a threshold (e.g. predetermined) to obtain count values for pairs of the second blocks and the third blocks.

It is noted Junichi et al differs from the present invention in that it fails to particularly disclose setting a maximum comparison value as specified in claims 20 and

21. Hazra et al however, in Figures 3, 5, and 8, teaches the concept of such well known extracting a pair of blocks containing pixels for which the count value becomes maximum (i.e. error ratio E smallest), respectively, from the pairs of the second blocks and the third blocks; and obtaining as a motion vector (e.g. best MV) between the m-th frame and the (m+n)-th frame a vector between the pair of blocks for which the count value becomes maximum.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, having both the references of Junichi et al and Hazra et al before him/her, to exploit the well known motion vector selection technique as taught by Hazra et al in the motion vector detection method of Junichi et al in order to select the best motion vector for each block pair.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. Lee whose telephone number is (571) 272-7334. The examiner can normally be reached on (571) 272-7334.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young Lee/
Primary Examiner
Art Unit 2621

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